Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1 ~~1~~. (Previously presented) A composite article to serve as a flexible, durable, light-weight insulation product comprising

a lofty fibrous batting containing a continuous aerogel in said batting.

2 ~~2~~. (Previously presented) The composite article of claim 1, wherein the aerogel is selected from the group consisting of inorganic and organic gel forming materials.

3 ~~3~~. (Previously presented) The composite article of claim 1, wherein the inorganic gel forming material is selected from the group consisting of zirconia, yttria, hafnia, alumina, titania, ceria, and silica, and any combination thereof.

4 ~~4~~. (Previously presented) The composite article of claim 1, wherein the organic gel forming material is selected from the group consisting of polyacrylates, polystyrenes, polyacrylonitriles, polyurethanes, polyimides, polyfurfural alcohol, phenol furfuryl alcohol, melamine formaldehydes, resorcinol formaldehydes, cresol formaldehyde, phenol formaldehyde, polyvinyl alcohol dialdehyde, polycyanurates, polyacrylamides, various epoxies, agar, and agarose, and combination thereof.

5 ~~5~~. (Previously presented) The composite article of claim 1, wherein the lofty fibrous batting consists essentially of fibers having a thermal conductivity less than 50 mW/m-K.

6 ~~6~~. (Previously presented) The composite article of claim 1, wherein the lofty batting has a sufficient quantity of fibers in its z axis to provide loft yet not so many that the insulating properties of the composite are compromised by the z axis fibers acting as thermal conduits.

7 ~~7~~. (Previously presented) The composite article of claim 1, further comprising a dopant.

8 ~~8~~. (Previously presented) The composite article of claim 7, wherein the dopant is selected from the group consisting of carbon black, titania, iron oxides, silicon carbide, molybdenum silicide, manganese oxides, and polydialkylsiloxanes wherein the alkyl groups contain 1 to 4 carbon atoms.

9 ~~9~~. (Previously presented) The composite article of claim 7, wherein the dopant is present in an amount of about 1 to 20% by weight of the total weight of the composite.

10 ~~10~~. (Previously presented) The composite article of claim 1, wherein the surface area of the fibers of the batting visible in a cross-section of the composite is less than 8% of the total surface area of that cross section.

11 ~~11~~. (Previously presented) The composite article of claim 1, wherein the fibers making up the lofty fibrous batting have a diameter of about 0.1 to 100 µm and are crimped fibers evenly dispersed throughout the composite.

12 ~~12~~. (Currently amended) A composite article comprising a fibrous batting containing a continuous aerogel in said batting, which batting is sufficiently lofty that the cross-sectional area of the fibers of the batting visible in a cross-section of the composite is ~~less than~~ less than 10% of the total surface area of that cross section.

13 ~~13~~. (Previously presented) The composite article of claim 12, wherein the aerogel is selected from the group consisting of inorganic and organic gel forming materials.

14 ~~14~~. (Previously presented) The composite article of claim 12, wherein the inorganic gel forming material is selected from the group consisting of zirconia, yttria, hafnia, alumina, titania, ceria, and silica, and any combination thereof.

15 ~~15~~. (Previously presented) The composite article of claim 12, wherein the batting is compressible by a minimum of 50% of its thickness and is sufficiently resilient that after compression for about 5 seconds it returns to at least 70% of its original thickness.

14 ~~16~~. (Previously presented) The composite article of claim 12, wherein the fibrous batting is sufficiently lofty that it retains at least 50% of its thickness after addition of the gel forming liquid to form said aerogel.

17 ~~17~~. (Previously presented) The composite article of claim 12, wherein the batting has a density in the range of about 0.1 to 16 lbs/ft^3 (0.001-0.4 g/cc), is compressible by at least 65% of its thickness and is sufficiently resilient that after compression for about 5 seconds it returns to at least 75% of its original thickness.

18 ~~18~~. (Previously presented) The composite article of claim 12, wherein the batting has a density of about 2.44 to 6.1 lbs/ft^3 (0.04 to 0.1 g/cc).

19 ~~19~~. (Previously presented) An aerogel composite article comprising (i) a lofty fibrous batting containing a continuous aerogel in said batting, which batting causes no substantial degradation of the thermal performance of the composite as compared with an aerogel of the same material and (ii) microfibers having diameters from about 0.1 to 100 μm and aspect ratios greater than 5.

20 ~~20~~. (Previously presented) The composite article of claim 19, wherein the microfibers are comprised of a material having a thermal conductivity below about 200 mW/mK.

21 ~~21~~. (Previously presented) The composite article of claim 19, wherein the microfibers are comprised of a material that resists sintering more than the lofty fibrous batting.

22 ~~22~~. (Previously presented) The composite article of claim 19, wherein the microfibers are comprised of a material that reduces the transmission of infrared radiation through the composite more than the lofty fibrous batting.

23 ~~23~~. (Previously presented) The composite article of claim 19, wherein the microfibers are comprised of a material that attenuates radio frequency waves.

24 ~~24~~. (Previously presented) The composite article of claim 19, wherein the microfibers are comprised of one or more materials that attenuate electromagnetic waves.

25 25. (Previously presented) The composite article of claim 19, wherein the microfibers are selected from the group consisting of carbon fibers and copper fibers.

26 26. (Previously presented) The composite article of claim 19, wherein at least one of the following properties varies within spatial locations of the composite: microfiber material; microfiber size; microfiber aspect ratio; and microfiber quantity.

27 27. (Previously presented) The composite article of claim 19, wherein a material having a high thermal conductivity equal to or greater than 1 W/mK is added on the x-y axis of the composite structure in addition to the lofty batting.

28 28. (Previously presented) The composite article of claim 27, wherein the high thermal conductivity material comprises a metal.

29 29. (Previously presented) The composite article of claim 28, wherein the high thermal conductivity material is a metal which is sufficiently malleable to provide conformability to the composite to enable the composite to retain its shape after bending.

30 30. (Previously presented) The composite article of claim 29, wherein the metal is selected from the group consisting of copper and steel.

31 31. (Previously presented) The composite article of claim 27, wherein the high thermal conductivity material is in a porous form selected from the group consisting of mesh, sheet, perforated sheet, foil, and perforated foil.

32 32. (Previously presented) The composite article of claim 27, wherein the composite has an x-y horizontal plane and a z vertical plane and the thermally conductive materials are oriented in the x-y plane of the composite.

33 33. (Previously presented) The composite article of claim 27, wherein the high thermal conductivity material conducts heat away from a localized heat load and emits it to the environment.

34. (Previously presented) The composite article of claim 33 further comprising a heat sink, wherein the heat is emitted to the environment by means of the heat sink.

35. (Previously presented) The composite article of claim 27, wherein the high thermal conductivity material conducts heat away from a localized heat load to a process which uses the thermal energy directly.

36. (Previously presented) The composite article of claim 27 further comprising device which converts the thermal energy to electrical energy, wherein the high thermal conductivity material conducts heat away from a localized heat load and into the device.

37. (Previously presented) The composite article of claim 27, wherein the high thermal conductivity material comprises carbon fibers.

38. (Previously presented) An aerogel composite article comprising (i) a lofty fibrous batting containing a continuous aerogel in said batting, which batting causes no substantial degradation of the thermal performance of the composite as compared with an aerogel of the same material and (ii) one or more high thermal conductivity materials having a thermal conductivity of equal to or greater than 1 W/mK.

39. (Previously presented) The composite article of claim 38, wherein the high thermal conductivity material comprises a metal.

40. (Previously presented) The composite article of claim 38, wherein the high thermal conductivity material is a metal which is sufficiently malleable to provide conformability to the composite to enable the composite to retain its shape after bending.

41. (Previously presented) The composite article of claim 40, wherein the metal is selected from the group consisting of copper and steel.

42. (Previously presented) The composite article of claim 38, wherein the high thermal conductivity material is in a porous form selected from the group consisting of mesh, sheet, perforated sheet, foil, and perforated foil.

43 ~~43~~. (Previously presented) The composite article of claim 38, wherein the composite has an x-y horizontal plane and a z vertical plane and the high thermal conductivity material is oriented in the x-y plane of the composite.

44 ~~44~~. (Previously presented) The composite article of claim 38, wherein the high thermal conductivity material conducts heat away from a localized heat load and emits it to the environment.

45 ~~45~~. (Previously presented) The composite article of claim 44, wherein the heat is emitted to the environment by means of a heat sink.

46 ~~46~~. (Previously presented) The composite article of claim 38, wherein the high thermal conductivity material conducts heat away from a localized heat load to a process which uses the thermal energy directly.

47 ~~47~~. (Previously presented) The composite article of claim 38, wherein the high thermal conductivity material conducts heat away from a localized heat load and into a device which converts the thermal energy to electrical energy.

48 ~~48~~. (Previously presented) The composite article of claim 38, wherein the high thermal conductivity material comprises carbon fibers.

49 ~~49~~. (New) The composite article of claim 1, wherein the batting has a density of between about 0.001 and 0.26 g/cc.

50 ~~50~~. (New) The composite article of claim 1, wherein the batting has a density of between 0.04 and 0.1 g/cc.

51 ~~51~~. (New) The composite article of claim 1, wherein the batting has a density of about 0.04.